

CLAIMS

I claim:

1. A mechanism for a mutex in a computer system having at least one possible state transition, comprising:
 - an identifier of the owner of the mutex;
 - an indicator of whether the mutex was acquired before or after the state transition; and
 - a mutex handler responsive to the identifier and the indicator.
2. The mechanism of claim 1, wherein the state transition is selected from the group consisting of:
 - a state transition between operational states of the computer system;
 - a state transition between operational states of a processor of the computer system;
 - a state transition between states of a process executing in the computer system; and
 - a state transition between states of a thread executing in the computer system.
3. The mechanism of claim 2, wherein the state transition is between operational states of the computer system.
4. The mechanism of claim 3, wherein the state transition is from normal operation to a panic.
5. The mechanism of claim 1, wherein the indicator and the identifier are combined and sized to be handled in a single atomic operation.
6. The mechanism of claim 1, wherein the indicator is a modification of the identifier
7. The mechanism of claim 1, wherein the identifier identifies a processor.
8. The mechanism of claim 7, wherein the identifier is a processor ID value.
9. The mechanism of claim 1, wherein:
 - the identifier is a first value if the mutex is acquired before the state transition; and
 - the identifier is a second value if the mutex is acquired after the state transition.

10. The mechanism of claim 1, wherein the mutex handler includes:
first mutex handling routines for use before the state transition; and
second mutex handling routines for use after the state transition.
- 5 11. The mechanism of claim 1, wherein the mutex handler overrides the mutex if the mutex
was acquired before the state transition, and handles the mutex normally if the mutex was
acquired after the state transition.
- 10 12. A method for handling a mutex after a state transition in a computer system, comprising
the steps of:
determining whether the mutex was acquired before or after the state transition; and
handling the mutex differently depending on whether the mutex was acquired before or
after the state transition.
- 15 13. The method of claim 12, wherein whether the mutex was acquired before or after the state
transition is determined from a data structure of the mutex.
- 20 14. The method of claim 12 wherein the step of handling the mutex includes:
overriding the mutex if the mutex was acquired before the state transition; and
handling the mutex normally if the mutex was acquired after the state transition.
- 25 15. The method of claim 12, further including the step of:
voluntary termination by a thread, where the thread existed before the state transition, and
where the thread accesses the mutex after the state transition.
- 30 16. The method of claim 12, further including the step of:
taking additionally steps to terminate the owner of a mutex acquired before the state
transition.
- 35 17. The method of claim 12, wherein the state transition is selected from the group consisting
of:
a state transition between operational states of the computer system;
a state transition between operational states of a processor of the computer system;
a state transition between states of a process executing in the computer system; and
a state transition between states of a thread executing in the computer system.

18. The method of claim 17, wherein the state transition is from a normal operational state of the computer system to a panic.
19. The method of claim 17, wherein the determining step is responsive to:
an identifier of the owner of the mutex; and
an indicator of whether the mutex was acquired before or after the state transition.
20. The method of claim 19, wherein the indicator is a modification of the identifier.
21. The method of claim 19, wherein the identifier is a processor ID value.
22. The method of claim 20, wherein:
the identifier is a first value if the mutex is acquired before the state transition; and
the identifier is a second value if the mutex is acquired after the state transition.
23. A computer program comprising computer program code means adapted to perform all the steps of the method of claim 12 when run on a computer.
24. An article for handling a mutex, comprising:
a computer-readable signal-bearing medium; and
means in the medium for performing the steps of claim 12.
25. An article for handling a mutex after a state transition in a computer system comprising:
a computer-readable signal-bearing medium;
means in the medium for determining whether the mutex was acquired before or after the state transition; and
means in the medium for handling the mutex differently depending on whether the mutex was acquired before or after the state transition.
26. The article of claim 25, wherein the medium is a recordable data storage medium selected from the group consisting of magnetic, optical, biological and atomic data storage media.
27. The article of claim 25, wherein the medium is a modulated carrier signal.

28. The article of claim 25, wherein the state transition is selected from the group consisting of:

- a state transition between operational states of the computer system;
- a state transition between operational states of a processor of the computer system;
- a state transition between states of a process executing in the computer system; and
- a state transition between states of a thread executing in the computer system.

29. The article of claim 28, wherein the state transition is from a normal operational state of the computer system to a panic.